DDM+ H2TU-C

CLEI: T1L3X5BA_ _

STATUS LEDs

STATUS	●	RED	Alarm on the H2TU-C loop, H2R loop, DSX or DS1 interface.
	✳	FLASHING	Signal Quality of 0 or No Sync on the loop.
	●	AMBER	Loopbacks active.
	✳	FLASHING	In-band loopbacks armed.
	●	GREEN	Functioning properly.
	✳	FLASHING	ES, SES, or BPV detected at either DSX or DS1 interface.

RS-232 DB-9 CONNECTOR

- Used to access the HDSL2 utilities menu tree via VT100 emulation software such as Terminal, Hyper Terminal – Private Edition, and ProComm Plus.
- There are two types of terminal emulation modes, Manual and Real-Time. To toggle between the two modes, type "CTRL" and "T." To update the screens while in Manual Mode, press the space bar 3 times. Real-Time Update Mode is the default.
- Provision terminal port as follows:

  Data Rate — 1.2 kbps to 19.2 kbps
  Asynchronous Data Format — eight data bits, no parity (none), one stop bit, and no flow control.

- Hardware Flow Control – disabled.
- When using a PC with terminal software, be sure to disable any power saving programs.

COMPLIANCE CODES

This product is intended to be installed in an enclosure with an Installation Code (IC) of "B" or "E" and in Restricted Access Locations only.

Code	Input	Output
Installation Code (IC)	A	—
Telecommunication Code (TC)	—	X
Power Code (PC)	F	C

WARRANTY

Warranty for Carrier Networks products manufactured by ADTRAN and supplied under Buyer's order for use in the U.S. is ten (10) years. For a complete faxback copy of ADTRAN's *U.S. and Canada Carrier Networks Equipment Warranty*: (877) 457-5007, Document #414.

CIRCUIT BOARD 6-POSITION DIP SWITCH – SW1

Provisions the unit. (Default settings are in bold.)

SW1-1
- Selects line coding to AMI or B8ZS

SW1-2
- Selects T1-framing to FRAMED or UNFRAMED[1]

SW1-3
- Selects T1-framing to SF or ESF

SW1-4
- ENABLES or DISABLES the NIU loopback

SW1-5
- ENABLES or DISABLES the loopback timeout[2]

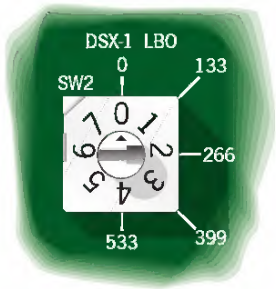
SW1-6
- ENABLES or DISABLES the shelf alarm

[1]UNFRAMED operation ignores the setting of SW1-3
[2]Default timeout setting is 20 minutes when loopback timeout is ENABLED

CIRCUIT BOARD 5-POSITION ROTARY SWITCH – SW2

Sets the DSX-1 Line Build Out (LBO). (Default settings are in bold.)

- **0** — 0-133 feet of LBO
- 133 — 133-266 feet of LBO
- 266 — 266-399 feet of LBO
- 399 — 399-533 feet of LBO
- 533 — 533-655 feet of LBO



CAUTION!
SUBJECT TO ELECTROSTATIC DAMAGE OR DECREASE IN RELIABILITY.
HANDLING PRECAUTIONS REQUIRED.

For a complete Installation and Maintenance faxback document: (877) 457-5007, Document #695. Please have your fax number available.

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HDSL2 TROUBLESHOOTING GUIDE

PRICING AND AVAILABILITY 800.827.0807
TECH SUPPORT 800.726.8663
RETURN FOR REPAIR 256.963.8722
www.adtran.com
61222003L2-22A

INDICATIONS AND PROBABLE CAUSES

Front Panel or Circuit Parameters Indicate Abnormal Operation

Connect a terminal or PC to the RS-232 (DB-9) craft interface located on the faceplate. The terminal must be VT100 or compatible and set for 1.2 to 19.2 kbps, 8 data bits, no parity, 1 stop bit, and no flow control. Select "3" from the ADTRAN HDSL2 Main Menu Screen and "2" from the Span Status Screen:

- Is signal quality fluctuating (this would occur when real-time mode is active)?
- Is ATTEN (pulse attenuation) > 30 dB?
- Are there any errors counting on the ES, SES, or UAS registers?

If the above conditions do not exist, the circuit should provide quality service; however, if any of the above conditions exist, a cable problem or excessive loss situation is probable and more detailed cable testing should be done to verify all HDSL2 Loop Specifications are met. These conditions may also reflect intermittent cable faults or excessive noise impairments. If intermittent faults or noise impairments are suspected, select "5" from the HDSL2 Main Menu and review the Performance History Screen.

Front Panel Indications Under Normal Operation

STATUS ● Green

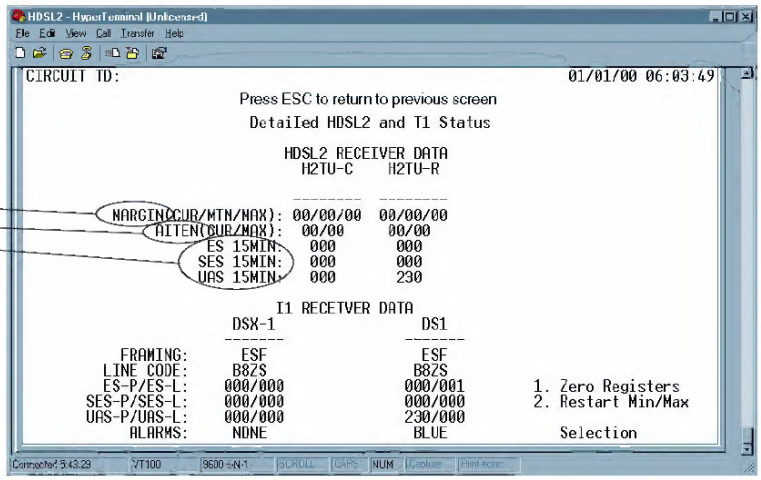
Circuit Parameters Under Normal Operation

- LOSS < 30 dB
- Good signal quality with no fluctuation
- All HDSL2 Deployment Guidelines are met

HDSL2 DEPLOYMENT GUIDELINES

- Cable pairs must be non-loaded
- Total bridged tap < 2.5 kft
- No single bridged tap >2 kft
- 196 kHz insertion loss ≤ 35 dB
- Pulse attenuation (loss on HDSL2 Span Status Screen) ≤ 30 dB
- Maximum loop resistance is 900 Ω
- Impulse noises < 50 dBrn as measured using a 50 kb filter
- Wideband noise ≤ 31 dBrn as measured using a 50 kb filter

For further information regarding deployment guidelines and applications, reference ADTRAN's *Supplemental Deployment Information for HDSL/HDSL2* document, P/N 61221HDSLL1-10.



HDSL2 Loopback Control Codes

Name	Code	Comments
Arming (In-band) Arming (ESF)	11000 0001 0010 1111 1111 (12 FF Hex)	Signal sent in-band or over ESF data link. HDSL2 elements in disarmed state make transition to armed state. Detection of either code results in Smartjack loop up, if NIU loopback is enabled.
Activation (H2TU-C)	1101 0011 1101 0011 (D3D3 Hex)	Signal sent in-band. HDSL2 elements in armed state make transition to loop up state. Loop up state timeout is programmable from the H2TU-C.
Activation (H2TU-R)	1100 0111 0100 0010 (C742 Hex)	
Deactivation	1001 0011 1001 0011 (9393 Hex)	Signal sent in-band. HDSL2 element loop-up state makes transition to armed state.
Disarming (In-band) Disarming (ESF)	11100 0010 0100 1111 1111 (24FF Hex)	Signal sent in-band or over ESF data link. HDSL2 elements in any state make transition to disarmed state.
Arming Timeout	N/A	2 Hours
Loop-up Timeout	N/A	HDSL2 element in loop up makes transition to armed state. Programmable from H2TU-C: None, 20, 60, or 120 minutes.
Loopback Timeout Override	1101 0101 1101 0110 (D5D6 Hex)	Signal sent in-band. Sets Loopback Timeout to NONE. Timeout will return to previous value when pattern is removed. Arming pattern (11000) must precede this pattern.
Span Power Disable	0110 0111 0110 0111 (6767 Hex)	Signal sent in-band. Disables span powering of remotes. Span power will return when pattern is removed. Arming pattern (11000) must precede this pattern.

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